

Developing a genomics reference resource on African cattle



**First AU-IBAR genetics project partner meeting
Cairo, 23-24 July 2016**

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Centre for Tropical Livestock Genetics and Health

CTLGH is a strategic alliance of The Roslin Institute at the University of Edinburgh, Scotland's Rural College and the International Livestock Research Institute

CTLGH supports programs that improve livestock-based livelihoods in the tropics. www.ctlgh.org

CTLGH programs:

Dairy genomics

Poultry genomics

Reproductive technologies

Health genetics

Informatics and biorepository

Dairy Genomics Program Aims

The dairy genomics program of CTLGH aims to **facilitate** the application of genomics to dairy production in the tropics – initial focus on cattle in Africa

This will be achieved through:

- With stakeholders, **identifying key applications** of genomics to dairy production in the tropics and advocating on these
- Supporting the **development of tools and methodological approaches** to facilitate the above identified applications
- **Capacity building**
- **Partnering** in research and resource mobilisation



Dairy Genomics Program Activities

Initial focus – tool development to support genomics applications on cattle in Africa

- **Genomics reference resource on African cattle**
 - a collated and publically accessible set of genomic information on cattle breeds in Africa
- **More informative and lower cost genomic characterisation tools for African cattle**
 - tailored SNP-chip
- **Smart tool to determine the breed composition of cattle in Africa**
 - enabling research such as comparison of breed and cross-breed performance

Genomics reference resource on African cattle

- Collated set of sequence data
 - Existing data: limited – few breeds with sequence data
 - Newly generated data
- Initial target is 25 breeds with 10 animals sequenced per breed (by end 2017)

Breed 1, Location 1, Animal 1:

ATGGCTTCAAGTCATGCAGGTCCGGAACGTATGCGTGAAA

...

Breed 1, Location 1, Animal 10:

ATGGCTTCAAGTCATGCAGGTCCGGAACGTATGCGTGAAAGT

Breed 1, Location 2, Animal 1:

ATGGCTTCAAGTCATGCAGGTCCGGAACGTATGCGTGAAT

...

Breed 1, Location 2, Animal 10:

ATGGCTTCAAGTCATGCAGGTCCGGAACGTATGCGTGAA

Breed 2, Location 3, Animal 1:

ATGGCTTCAAGTCATGCAGGTCCGGAACGTATGCGTGA

...

Breed 2, Location 3, Animal 10:

ATGGCTTCAAGTCATGCAGGTCCGGAACGTATGCGTGA

Genomics reference resource on African cattle – proposed schema



Data is country owned and contributed to the Genomics Reference Resource by countries



CTLGH dairy genomics program provides: technical support & resources to partner countries to obtain data; capacity building of partner countries



Reference data used to generate tools that will benefit African research community on AnGR & ultimately African livestock keepers

CTLGH dairy genomics stakeholder engagement on Cattle Genomics in Africa

In this webforum we will discuss:

- **Current and future applications of genetics / genomics to cattle in Africa** – which applications will make a difference
- The potential to create a **genomic information resource on African cattle** – particularly which breeds to prioritise, and partner engagement



16 to 26 August 2016
<http://cattle-genomix.net>



CTLGH Dairy Genomics Program

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